# Commonwealth of Kentucky
# Division for Air Quality

## PERMIT APPLICATION SUMMARY FORM

Completed by: Andrew True

GENERAL INFORMATION:

| | |
|---|---|
| Name: | ISP Chemicals, LLC |
| Address: | Highway 95<br>Calvert City, KY 42029 |
| Date application received: | 9/12/2008 |
| SIC Code/SIC description: | 2869, Chemicals and Allied Products |
| Source ID: | 21-157-00003 |
| Source A.I. #: | 2939 |
| Activity ID: | APE20080002 |
| Permit: | V-06-052 R2 |

APPLICATION TYPE/PERMIT ACTIVITY:

| | |
|---|---|
| [ ] Initial issuance | [ ] General permit |
| [X] Permit modification | [ ] Conditional major |
| __ Administrative | [X] Title V |
| X Minor | [X] Synthetic minor |
| __Significant | [ ] Operating |
| [ ] Permit renewal | [X] Construction/operating |

COMPLIANCE SUMMARY:

[ ] Source is out of compliance [ ] Compliance schedule included

[X] Compliance certification signed

APPLICABLE REQUIREMENTS LIST:

| | | |
|---|---|---|
| [ ] NSR | [X] NSPS | [X] SIP |
| [ ] PSD | [X] NESHAPS | [ ] Other |
| [ ] Netted out of PSD/NSR | [X] Not major modification per 401 KAR 51:001, 1(116)(b) | |

MISCELLANEOUS:

[ ] Acid rain source

[ ] Source subject to 112(r)

[X] Source applied for federally enforceable emissions cap

[ ] Source provided terms for alternative operating scenarios

[X] Source subject to a MACT standard

[ ] Source requested case-by-case 112(g) or (j) determination

[ ] Application proposes new control technology

[X] Certified by responsible official

[ ] Diagrams or drawings included

[ ] Confidential business information (CBI) submitted in application

[ ] Pollution Prevention Measures

[ ] Area is non-attainment (list pollutants):

EMISSIONS SUMMARY:
Minor Revision; V-06-052 R2

| Pollutant | Actual* (tpy) | Potential (tpy) |
|---|---|---|
| PM | 21.07 | 43.5 |
| $PM_{10}$ | 15.41 | 41.5 |
| $SO_2$ | 1984.38 | 3239.71 |
| $NO_X$ | 293.45 | 512.45 |
| CO | 102.63 | 235.22 |
| VOC | 509.31 | 1642.51 |
| Single HAPs > 10 tpy | | |
| Acetaldehyde | 13.35 | 21.93 |
| Benzene | 13.33 | 235.22 |
| Methanol | 14.57 | 15.77 |
| Toluene | 9.05 | 19.7 |
| Source wide HAPs | 61.42 | 313.99 |

* From "2007 Emissions Survey" (TEMPO)

Significant Revision; V-06-052 R1

| Pollutant | Actual* (tpy) | *Potential (tpy) |
|---|---|---|
| PM | 21.06 | 41.24 |
| $PM_{10}$ | 15.41 | 30.82 |
| $SO_2$ | 1984.38 | 3239.92 |
| $NO_X$ | 293.45 | 512.74 |
| CO | 102.63 | 237.21 |
| VOC | 509.31 | 1201.87 |
| Single HAPs > 10 tpy | | |
| Acetaldehyde | 13.35 | 129.21 |
| Benzene | 13.33 | 55.62 |
| Methanol | 14.57 | 19.64 |
| Toluene | 9.05 | 14.31 |
| Source wide HAPs | 61.42 | 312.75 |

* From "2007 Emissions Survey" (TEMPO)
* 2007 Emission Survey was created prior to finalization of V-06-052 Title V Renewal (APE20060003). Therefore, the 2007 Emission Survey did not include emissions from units added to the emissions inventory in the V-06-052 Title V renewal and revisions which were processed with the renewal. This accounts for most of the variation in potential to emit (PTE) between V-06-052 R1 (from 2007 Emission Survey and V-06-051 R2 (calculated)).

## SOURCE DESCRIPTION:

ISP Chemicals Inc. (ISP) is a large Synthetic Organic Chemical plant that makes a wide variety of intermediates and specialty chemicals. The source is a major source, as defined by 401 KAR 52:020 Title V Permits, for the potential emissions of over 100 tons per year of sulfur dioxide ($SO_2$), nitrogen oxides ($NO_X$), carbon monoxide (CO), and volatile organic compounds (VOC), the potential of a single hazardous air pollutant (HAP) greater than 10 tons per year, and the potential combined HAP emissions greater than 25 tons per year.

The source is also a major source, as defined by 401 KAR 51:017 Prevention of Significant Deterioration of Air Quality (PSD), for potential emissions of over 100 tons per year of $SO_2$, CO, $NO_X$, and VOC.

**V-06-052 R2 MINOR REVISION:**

ISP Chemicals LLC. applied for a Minor Revision to their Title V permit for venting of the existing Vinyl Pyrrolidone (VP) and Higher Vinyl Ethers (HVE) acetylene feed systems to improve operational safety at the plant in Calvert City, Kentucky. The gases vented will consist primarily of acetylene, propane, and inerts. Emissions will be vented to existing flare 421/5310. This change will not affect the capacity of the VP or HVE process units, and the acetylene feed system venting will be the only emission increase associated with the change.

**V-06-052 R1 SIGNIFICANT REVISION:**

ISP incorporated requirements for 40 CFR 63 Subpart FFFF, Miscellaneous Organic Chemical Manufacturing (MON). The application included an extension to the construction of new reactor and dryer in the 240 Building. Since uncontrolled emissions were over 40 tpy for VOC, the facility accepted operating limits to preclude the applicability of PSD.

## EMISSIONS AND OPERATING CAPS DESCRIPTIONS:

In order to preclude applicability of 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality (PSD), the source is complying with the following limits:

| Area | Equipment | Limit Description | Pollutant |
|---|---|---|---|
| BLO | BLO process unit | The permittee shall calculate and maintain a record of actual process vent emissions, in tons per year on a calendar year basis, of VOC from the BLO process unit. | VOC |
| 240 Building | Reactor 5 and Dryer 4 | Emissions shall not exceed 36 ton/yr. | VOC |
| 236 Building | Drum Dryer 236/3506 | Actual emissions shall not exceed 36 ton/yr. | VOC |
| Zurn Boiler | Zurn Boiler | No. 2 Fuel Oil use shall not exceed 700,000 gal/year. | $SO_2$ |
| Zurn Boiler | Zurn Boiler | Emissions shall not equal or exceed 36 ton/year. | $SO_2$ |
| Vinyl Pyrrolidone Acetylene Feed System | VP1 (02) | Combined VOC emissions from VP1 (02) and 261 (02) shall not equal or exceed 36 tons/year | VOC |
| Higher Vinyl Ethers Acetylene Feed System | 261 (02) | | |

## OPERATIONAL FLEXIBILITY:

None